Getting cows in calf involves time, patience, knowledge and money

When to get cows in calf?

OENKERK [NL] ■ Reproduction strategies differ largely between countries. In countries with predominantly grass-based farming systems, the reproduction cycle of the herd is very seasonal. The cows are inseminated during spring time and calve during the winter. In countries where cows are housed for large parts of the year, or all year round, cows calve all year round.

There are different objectives and standard operating procedures (SOPs) not only between countries but also within countries on different farms. The system used depends on, for example, milk production. Farms with herds with a low production level will benefit more from a short calving interval than farms with a high herd production level. This is shown in table 1. When a calving interval is 428 days and the milk yield is 11,000kg per cow, this costs four euro more than a calving interval of 365 days. But for very high producing cows (>11,000kg) inseminating later, not until 150 days post calving, does not have any negative financial consequences.

Table 1 – Effects of higher milk production per cow on losses arising from a calving interval of > 365 days (in euros) (source: Veterinarian Faculty Utrecht)

production (kg/305 days)	calving interval (days)				
	386	407	428	449	470
7,000	7	15	24	34	47
8,000	7	15	24	34	47
9,000	5	11	18	25	37
10,000	3	6	11	16	26
11,000	0	2	4	7	15
12,000	–3	–4	–4	–4	2

The calving interval comprises of three phases: the interval between calving and the first insemination, the interval between the first insemination and pregnancy and the pregnancy time (280 days). Every herd aims to keep the interval between first insemination and pregnancy as short as possible. The length of this interval depends on, among other things, the speed of the recovery of the reproductive tract and the quality of the follicles.

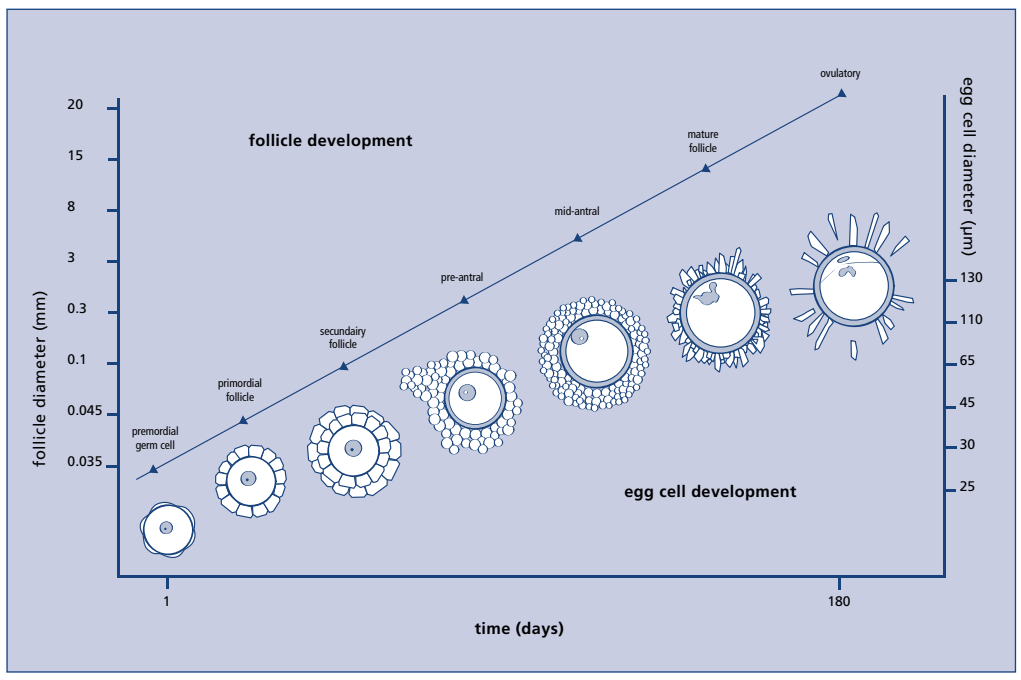
Despite the differences in reproduction strategies within and between countries we all agree that it is important to get our cows back in calf on time, particularly to maximise and guarantee the profitability of our herd in the future. This means that the cow's reproductive tract has to be in good shape again as soon as possible after calving. And there can be problems here that require intervention from the producer and/or the vet.

Retained placenta

One reproductive problem that may occur after calving is that the placenta doesn't come away (retained placenta). In this case a recommended SOP is to administer a placenta pill every 24 hours until the problem in resolved. The active ingredient oxytetracycline will have a positive effect on the smell and help to reduce inflammation.

Standard operating procedure retained placenta
If the placenta doesn't come away during the first 12 hours after calving:
– administration of placenta pill,
– repeat this every 24 hours until the placenta comes away.

Follicle development (source: Lussier et al., 1987 and Fair, 2003)



This picture shows a normal size uterus 15 days post partum

14 Days check-up

Due to the importance of clean uterine horns a rectal check up of the uterine horns 14 days post partum is recommended as a SOP. The reproductive tract of a healthy cow will be sufficiently recovered within approximately three weeks. If the vet concludes that the uterus has not shrunk sufficiently within these 14 days, this should lead to action (look at frame).

Standard operation procedure post partum
Rectal check up 14 days post partum
If the size of the uterine horns is abnormal:
– use prostaglandins to get the cow in heat. The uterus will contract and this will help to expell dirt and infection,
– flush the uterus with antibiotics.

If uterine inflammation is left untreated it may develop into chronic inflammation. And the chances of cows with chronic uterine inflammation getting back in calf at the first attempt is 12% less than that of healthy cows. To treat them, prostaglandins can be used to get them in heat.

Follicle development

In the Netherlands the average calving interval is 417 days. The question is whether or not the aim should be to shorten this calving interval. As is shown in table 1, this depends largely on milk production.

After calving a cow's milk production rises faster than her energy intake, particularly in high producing cows. So she uses body fat as an energy source, which creates a negative energy balance (NEB) and results in weight loss. If body fat is broken down, non esterified fatty acids (NEFAs), appear in the blood. A high concentration of NEFAs in the blood is a sign of a disturbed balance between energy intake and energy use. A high concentration of NEFAs in the follicle fluid will negatively influence the quality of the egg cell.

Besides the high concentration of NEFA's, NEB also leads to reduced follicle growth. So a NEB negatively influences follicle development in several ways. The development of the follicle to the point of ovulation takes approximately 180 days. The follicle that is released 50 days post partum is of better quality and therefore has a higher chance of being fertilised compared to the follicle that is released 100 days post partum. This is because the latter follicle has developed at a time of negative energy balance. The quality of the follicle is highest when the development took place when the cow was experiencing a positive energy balance. At a calving interval of more than 400 days, as in the Netherlands, the follicle development took place in the period of recovery.

Furthermore, high producing cows have a more persistent lactation curve than low producing cows. This means that an extended calving interval does not lead to losses because these cows still have a high milk yield per day at the end of the lactation. So, to select the optimum insemination point it is important to know the history of the cows.

A lot of research has shown that the duration and the severity of the negative energy balance are determining factors as far as cow fertility is concerned. It is proven that the first ovulation takes place after the most negative point in the energy balance, when cows are returning to a healthy energy balance. Cows with a strong negative energy balance are slower to begin cycling or show poor and weak signs of heat. Getting these cows in calf in time is hard. A cyst can also disturb a cow's fertility. Cows with cystic ovaries usually don't show any signs of heat. Cystic ovaries and non-active ovaries are related to a severe energy shortage during the first weeks after calving. A vet can treat these animals with hormones.

Problems around fertility are a common cause of culling in countries all around the world and declining fertility is significant cause of financial loss for dairy producers. So, getting cows in calf may require time, patience, knowledge and money, but it's well worth it! •